

CLAIMS

What is claimed is:

1. A method for a first device to access the services of a second device, comprising the steps of:

- 5 establishing a first, communicative connection between the first consumer device and a first server;
- establishing a second communicative connection between the first server and a second server;
- 10 establishing a third, communicative connection between the second server and the second device;
- requesting a service, by the first device, from the second device utilizing the first, second, and third communicative connections; and
- performing, at the second device, the requested service.

2. The method of claim 1 wherein the step of establishing the second
15 communicative connection further comprises the step of verifying that the first device has authorization to establish the second communicative connection.

3. The method of claim 1 further comprising, after the performing step, the step of sending from the second device to the first device the status of the performing step.

4. The method of claim 1 further comprising, after the establishing a second
20 communicative connection step, the step of reporting to the first device a listing of services available from the second device.

5. The method of claim 1 wherein the establishing a first communicative
connection step comprises the step of establishing a wireless communicative
25 connection between the first device and a first server.

6. The method of claim 1 wherein the establishing a third communicative
connection step comprises the step of establishing a wireless communicative
connection between the second device and the second server.

7. An apparatus implementing the method of claim 1.

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8. A server device that is capable of communicating over a first communications link with a client device and over a second network link to a second server device comprising:

5 a communications link interface for communicating between the server device and the client device;

a network interface for communicating between the server device and a second server device;

10 a processing unit, being operable to send and receive data over the communications link interface and over the network interface, said processor being further operable to:

establish a communications link for data communication through the link interface with a client device;

15 establish a network link for data communication through the network interface to the second server device;

forward service requests from the client device to the second server device; and

forward responses to the service requests from the second server device to the client device.

20 9. The server device of claim 8 wherein the communications link is a wireless interface.

10. A method for a first client device to access the services supplied by a second client device, comprising the steps of:

- 5 establishing a first link between the first client device and a first server;
- transmitting a connection command over the first link to the first server, the connection command being operative to request a connection with a second server and comprises an address of the second server, a user identification, and a password;
- 10 establishing a second link between the first server and a second server;
- transmitting the connection command over the second link from the first server to the second server;
- verifying the authorization of the user identification and password
- 15 at the second server;
- notifying the first server over the second link from the second server of the acceptance of the connection command upon success of the verifying step;
- notifying the first client device from the first server over the first
- 20 link of the acceptance of the connection command;
- requesting a listing from the first server of available services from the second client device wherein the first server requests such a listing from the second server, the second server maintaining such a listing from the second client device which is communicatively coupled to the second
- 25 server over a third link, and the listing identifying at least one service offered by the second client device;

the first consumer device requesting a service from the listing to be performed by the second client device by relaying a service request to the second client device;

performing the service requested in the service request by the second client device.

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11. An apparatus implementing the method of Claim 10.

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12. A data structure for use in a communication protocol, the data structure having a plurality of data fields for representing data, comprising:

a first data field comprising:

data representing a three letter identification code unique to a particular device type; and

data representing a server type; and

a second data field comprising:

data representing a three letter identification code unique to a particular service type; and

data representing service types.

13. The data structure of claim 12 wherein the first data field further comprises optional data comprising comments.

14. The data structure of claim 12 wherein the data representing service types in the second data field is selected from the group consisting of "CONNECT" and "DISCONNECT".

15. The data structure of claim 12 wherein the second data field further comprises data comprising parameters.

16. A system for allowing devices to communicate and share information, resources, and functionality, that normally could not communicate due to the inability to communicate directly with each other, the system comprising:

a local server able to communicatively couple to a local device;

a remote server able to communicatively couple to a remote device and to the local server;

the local server being operative to:

receive a service request from the local device;

provide a request message to the remote server of the reception and content of the service request;

receive a response message from the remote server, the
response message being affiliated with the request message; and
respond to the local device with information indicative of the
response message; and

5 the remote server being operative to:

receive the request message from the local server;
perform further processing commensurate with the request
message; and

provide the response message to the local server.

10 17. The system of claim 16, wherein the service request from the local device
comprises a request to establish a logical connection between the local device
and the remote server and includes an IP network address of the remote server.

15 18. The system of claim 16, wherein the service request from the local device
comprises a request to establish a logical connection between the local device
and the remote server.

19. The system of claim 18, wherein the service request from the local device
further includes a user identification and a password, and the local server is
operative to provide the request message to the remote server and receive a
response message from the remote server by:

20 establishing a link with the remote server;
transmitting the user identification to the remote server;
receiving a first status indicator from the remote server in response
to the user identification;
transmitting the password to the remote server; and
25 receiving a second status indicator from the remote server in
response to the password.

20. The system of claim 19, wherein after establishing a link with the remote server, the local server receives a message from the remote server indicating that the remote server is communicatively compatible with the local device.

21. The system of claim 19, wherein the first status indicator indicates that
5 the user identification is not accepted by the remote server.

22. The system of claim 19, wherein the first status indicator indicates that the user identification is accepted by the remote server.

23. The system of claim 19, wherein the second status indicator indicates that the password provided is valid for the user identification.

10 24. The system of claim 19, wherein the second status indicator indicates that the password provided is invalid for the user identification.

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25. The system of claim 19, wherein the local server is operative to respond to the local device with information indicative of the response message by being further operative to:

15 provide a first response if the response message indicates that the logical connection could not be established;

provide a second response if the response message indicates that the user identification and password are not both acceptable by the remote server;

20 provide a third response if the response message indicates that the logical connection is established; and

provide a fourth response if the response message indicates that a logical connection already exists with another server.

26. The system of claim 16, wherein the service request message from the
25 local device comprises a request to disconnect a logical connection between the local device and the remote server.

27. The system of claim 16, wherein the service request from the local device comprises a request to disconnect a logical connection between the local device

and the remote server, and the local server is operative to provide the request message to the remote server by:

transmitting to the remote server, a request to disconnect the logical connection between the local device and the remote server; and

5 receiving a status indicator from the remote server indicating that the logical connection is disconnected.

28. The System of claim 16, wherein the service request message from the local device comprises a request for the remote device to provide a service.

29. The System of claim 16, wherein the service request message from the
10 local device comprises a request for the remote server to identify a device type and a service type for at least one remote device that can be communicatively coupled to the remote server.

30. The System of claim 16, wherein the service request message from the
15 the remote device is operative to perform further processing commensurate with the request message from the local server by requesting the remote device to perform the service identified in the service request and the request message.

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